What is claimed is:

1.   An intelligent network service control point which is connected with a plurality of switching systems in a transport layer network over a common channel signaling network and connected with an Internet protocol network through a gateway, comprising:

first means for storing information "a first terminal is being connected to the Internet" into a user information management table when a call waiting service request is received from said first terminal which is being connected to said Internet protocol network over said transport layer network; and

second means for sending an incoming call notification message destined for said first terminal to said gateway with reference to said user information management table when a notification indicating that said first terminal is called from a second terminal is received from one of said plurality of switching systems.

An intelligent network service control point according to claim 1, wherein

said user information management table has an entry including a telephone number of said first terminal, flag information indicating whether or not said first terminal is being connected to the Internet, and address information of

said gateway, and said first means updates contents of said

entry, and said second means makes reference to said flag

information and address information.

5   3.   An intelligent network service control point

according to claim 1,

wherein, upon receipt of a notification response message

indicating a response from a user of said first terminal in

reply to said incoming call notification message through said

10   gateway, said second means instructs said one of said plurality

of switching systems to carry out a connection service for an

incoming call to said first terminal according to said

notification response message.

15   4.   A service control gateway through which an

intelligent network service control point having a connection

with a plurality of switching systems in a transport layer

network over a common channel signal network is connected with

an Internet protocol network having a connection with said

20   transport layer network, comprising:

protocol conversion means for protocol-wise converting

a service request message for requesting an Internet call

waiting service of said service control point into a message

addressed to said service control point which includes an

25   identifier for identifying one of a plurality of service

control programs to be executed on said service control point, said service request message having been received from a first terminal connected to said Internet protocol network over said transport layer network; and

means for sending the said protocol-wise converted message to a signal line connected with said service control point.

5. A service control gateway according to claim 4, comprising:

protocol conversion means for protocol-wise converting an incoming call notification message indicating arrival of an incoming call from a second terminal to said first terminal into a message addressed to a server being in communication with said first terminal, said incoming call notification message having been received from said service control point, and said server being included in said Internet protocol network and having a function for transferring messages received from said service control gateway to said first terminal; and

means for sending said protocol-wise converted message to a signal line connected with said server.

6. A service control gateway according to claim 4, comprising:

protocol conversion means for protocol-wise converting an incoming call notification message indicating arrival of an incoming call from a second terminal to said first terminal into a message addressed to an access point apparatus being in communication with said first terminal, said incoming call notification message having been received from said service control point, and said access point apparatus being included in said Internet protocol network and having a function for transferring messages received from said service control gateway to said first terminal; and

means for sending the said protocol-wise converted message to a signal line connected with said Internet protocol network.